CLAIMS

1. A planar light source comprising:
   (a) a glass cell comprising first and second glass walls,
   (b) a low pressure gaseous mixture inside said glass cell,
   (c) a means of striking a gas discharge inside said gas cell, said gas discharge being capable of producing ultraviolet photons,
   (d) an optically reflecting coating on said first glass wall adapted to reflect visible light,
   (e) a phosphor layer the first glass wall which is capable of converting ultraviolet photons into visible light, and
   (f) an optical coating on the inside of the second glass wall which reflects substantially all ultraviolet light and transmits substantially all visible light.

2. A planar light source as claimed in claim 1 further comprising: a sheet type reflecting polarizer placed on the outside of the second glass wall, said reflecting polarizer being adapted to reflect linearly polarized light of one polarization and to transmit linearly polarized light of a perpendicular polarization.

3. A planar light source as claimed in claim 2 further comprising: a quarter wave retardation plate placed on an exterior surface of the second glass wall between said glass wall and said polarizer.

4. A planar light source as claimed in claim 3 further comprising: a light scattering film on top of said reflecting polarizer that can limit the angle of emission of the light to be predominately in the forward direction.

5. A planar light source as claimed in claim 1 wherein said means of striking a gas discharge comprises a pair of electrodes through the side of the said glass cell.

6. A planar light source as claimed in claim 1 wherein said means of striking a gas discharge in comprises a radio frequency source located outside the said glass cell.

7. A planar light source as claimed in claim 1 wherein said gaseous mixture comprises a mixture of inert gases and mercury or compounds of mercury.

8. A planar light source as claimed in claim 7 further comprising a heating device for raising the cell temperature to above 30° C.

9. A planar light source as claimed in claim 1 wherein the phosphor layer is continuous over the surface of the first glass wall.

10. A planar light source as claimed in claim 1 wherein the phosphor layer is patterned over the surface of the first glass wall.

11. A planar light source as claimed in claim 1 wherein the first and second glass walls are spaced apart by a distance of at least 0.5mm.